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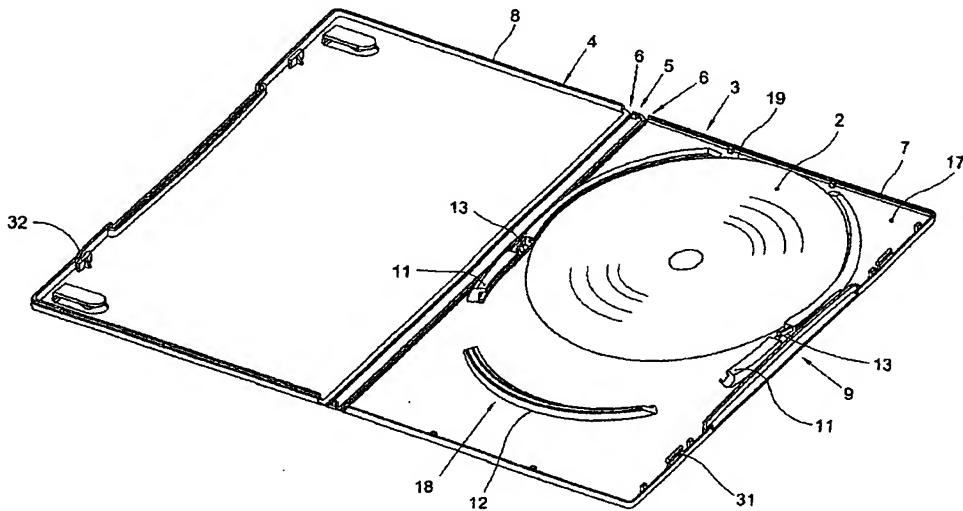
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(54) Title: DEVICE AND METHOD FOR PACKAGING PLATELIKE INFORMATION CARRIERS



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(57) Abstract: A device for packaging substantially platelike information carriers, provided with a first and a second cover part, wherein at least one of the cover parts is provided with receiving means for engaging and locking at least one information carrier, which receiving means comprise at least two guide elements, which can guide and lock at least a portion of an outer edge of the information carrier, such that during use the information carrier can be slid into or under the guide elements, while the information carrier can be taken out of the package by sliding it approximately parallel to its surface and approximately parallel to the respective cover part.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Title: Device and method for packaging platelike information carriers.

This invention relates to a device for packaging substantially platelike information carriers.

'Platelike information carriers' should herein be understood to include at least information carriers having substantially a circular shape, such as 5 CDs, for instance music CD, CD-ROM, CD-i, CD-RW or DVD, and information carriers having a substantially polygonal, in particular rectangular shape, such as chip cards, credit cards, SIM cards, memory cards or memory sticks, disks such as computer diskettes and minidisks and the like.

10 Known from practice are storage devices for CDs which are usually designated as Jewel-cases. They comprise two cover parts capable of hinging relative to each other, while in one of the cover parts, for instance with the aid of a tray inlay, a rosette is arranged. This rosette is formed by a number of resilient elements, disposed in a circle, over which the CD can be pressed, 15 by way of the central opening thereof, to be retained by clamping, while protuberances of the elements engage the upper side of the CD. When taking the CD out, the segments are elastically deformed, so that the CD can be pulled over the protuberances.

These known devices have as a drawback that both when placing and 20 when detaching the CD, as well as in the storage condition, forces are exerted on the CD which lead to undesired stresses in the CD and in the packaging device. This may give rise, for instance, to crack formation in the CD and/or fatigue damage in the rosette. Often, segments break from the rosette, so that the action of this device is considerably impaired or even 25 annulled. A further disadvantage of these known devices is that they take up relatively much space, more specifically, are relatively thick, especially due to the rosettes. The fact is that the rosettes in any case must have a height slightly greater than the thickness of the CD to enable them to

engage the upper side of the CD. Moreover, under the CD, some space is to remain clear to enable sufficient deformation of the rosette to allow the CD to be placed and removed. Together with the necessary wall thicknesses of the cover parts, this leads to a minimum thickness of about 10 mm.

5 Further, these known devices have as a disadvantage that placing, and especially removing, the CD is difficult, for instance because the CD must be retained at its outer peripheral edge and the rosette must be depressed simultaneously, which requires relatively large hands and good coordination.

10 The object of the invention is to provide a device for packaging information carriers as described in the introduction, in which the disadvantages of the known devices have at least partly been avoided, while maintaining the advantages thereof. To that end, a device according to the invention is characterized by the features according to claim 1.

15 With a device according to the invention, an information carrier is slid approximately parallel to its surface into receiving means in or on a cover part, such that at least a portion of its outer edge is guided and embraced by guide means, for positioning and retaining the information carrier. The guide elements can then be made particularly small, at least 20 thin, so that they occupy relatively little space. Thus, the guide elements can be, for instance, somewhat rail-shaped, having, for instance, a somewhat U-shaped cross section, the legs of which extend approximately parallel to, or in, the respective cover part. The thickness of these legs can then be kept particularly small, for instance a few tenths of millimeters, 25 since they do not need to provide any clamping action. They only need to limit movement of the information carrier in a direction approximately at right angles to its outer surface and to guide the information carrier when being placed and removed. For that matter, the guide elements can also be mutually connected through a connecting part or even form part of a 30 continuous element.

In a device according to the invention, it is particularly advantageous if at least one resilient element is provided which locks the information carrier in a lock position in the receiving means, which resilient element can be pushed aside by the information carrier being removed and/or being placed, but offers sufficient resistance to shifting of the information carrier in the lock position, for instance during displacement of the device with information carrier.

In a device according to the invention, both when placing and when removing the information carrier, as well as in the lock position, no undesired forces, in particular no bending forces, are exerted on the information carrier. Only the resilient elements, when placing and removing the information carrier, will exert some force, approximately parallel to the flat outer sides of the information carrier, against the peripheral edge, which will not lead to undesired stresses in the information carrier.

Moreover, no prolonged deformations need to arise in particular in the resilient fingers and the further receiving means, so that problems of fatigue will not occur.

A further advantage of a device according to the invention is that the information carrier will not come loose unintentionally when pressure is applied to the closed package, as may easily happen with the rosette of the known device. In the use of a device according to the invention for packaging, for instance, CDs or like devices having at least one opening, a finger can simply be stuck in the opening, whereafter the information carrier can be moved. Also, the receiving means, in particular the guide elements, can be designed such that a finger can be simply placed against a peripheral edge part of the information carrier for the purpose of moving it.

In a device according to the invention, the receiving means, in particular the guide elements and the resilient elements, if any, are preferably dimensioned such that the information carrier is not clamped but is locked in the lock position, with the guide elements constituting sliding

fits or guides with particularly little clearance, whilst the resilient projection or projections, substantially undeformed, abut against the side of the information carrier. Any clearance is then preferably appreciably smaller than the thickness of the information carrier, for instance 5 maximally a few tenths or hundredths of the thickness thereof.

In a particularly advantageous embodiment, the receiving means, and the cover part on or in which they are provided, are dimensioned such that the information carrier is positionable on the cover part, partly next to the receiving means, and slidable along the receiving means into a lock position 10 in the receiving means *vice versa*. This renders placement and removal simpler still. Preferably, the respective cover part is then provided with an upstanding longitudinal edge, such that the information carrier can be laid within the longitudinal edge, at least partly next to the receiving means, and the longitudinal edge can prevent the information carrier sliding off the 15 respective cover part.

Preferably, in the lock position mentioned, the information carrier has its outer surfaces held in spaced relation from the cover parts, thereby preventing damages still better.

In a further advantageous embodiment, a device according to the 20 invention is injection molded, preferably in one piece, while the cover parts are mutually connected by a back, while integrally injection molded hinges (living hinges) are provided, so that a robust packaging device simple to manufacture and relatively inexpensive can be obtained.

In a device according to the invention, the sliding direction of the 25 information carrier along a cover part, between a free position and a lock position when received in the receiving means, can extend, for instance, parallel to the back of the storage device, but can also include an angle therewith, for instance an angle of approximately 90°. In an advantageous further elaboration, at least one cover part is provided with receiving means 30 for receiving at least two information carriers and/or both cover parts are

provided with receiving means. Thus, several information carriers can be packaged in the same device.

As described, the known storage devices are relatively thick, for instance 10 mm or more, also when only one information carrier can be received therein. It is preferred, however, to make the packaging devices of relatively thin design, since in that case they occupy less space.

Surprisingly, it has been found that with a packaging device according to the invention, the device can have a thickness of less than approximately 9 mm, allowing at least one information carrier to be received on one of the cover parts, whilst additionally, with the device closed, there is still room for further information means, such as, for instance, a booklet of a thickness of, for instance 3-4 mm. It will be clear that such a storage device can therefore be made of still thinner design. The wall thickness of a packaging device according to the invention is preferably, at least as regards the faces of the cover parts, relatively small, preferably less than approximately 1 mm.

Therefore, when packaging an information carrier of a thickness of, for instance, approximately 2 mm, the total thickness of the package can be limited to, for instance, approximately 6-6.5 mm or even approximately 4 mm. If the cover parts are made of extra thin design, even a still smaller thickness can be achieved.

By designing the packaging device to have outside dimensions approximately corresponding to those of existing DVD cases, in particular approximately 135 x 190 mm, the advantage is achieved that packaging devices according to the invention can be used in standard storage devices, processing equipment, packaging machines and the like. However, other outside dimensions can naturally be used as well.

In an alternative embodiment, a device according to the invention is characterized by the features according to claim 18.

In such an embodiment, the receiving means are incorporated in an inlay. The inlay is arranged in or on a cover part, for instance slid in,

clamped, glued or welded. The cover parts and the inlay can be manufactured from the same or different materials.

More detailed elaborations of devices according to the invention are given in the further claims, which are understood to be repeated here.

5 The invention further relates to an assembly of a device according to the invention and an information carrier to be received or received therein.

The invention furthermore relates to a method for filling a device according to the invention, characterized by the features according to claim 29.

10 Such a method provides the advantage that the packaging device can be filled in a simple manner, necessitating only minor adaptations of existing packaging devices for, for instance, CDs or other platelike information carriers.

15 In the further subclaims, further advantageous embodiments of packaging devices according to the invention are set forth.

To clarify the invention, exemplary embodiments of a packaging device, assembly and method according to the invention will be further elucidated with reference to the drawing. In the drawing:

20 Fig. 1 is a perspective view of a packaging device according to the invention, with a CD in a free position;

Fig. 2 is a perspective view of a clamping finger for booklets of a device according to Fig. 1;

Fig. 3 is a perspective view of a detail of a device according to Fig. 1 with receiving means;

25 Fig. 4 is a perspective view of a detail of a back of a device according to Fig. 1 with cover parts attached thereto through hinge means;

Fig. 5 is a front view of a device according to Fig. 1 in open position;

Fig. 6 is a rear view of a device according to Fig. 1 in open position;

30 Figs. 7-9 show three alternative embodiments of a device according to the invention;

Fig. 10 is a perspective view of a portion of the receiving means of a device according to Fig. 9;

Fig. 11 is a perspective view of a device according to Figs. 9 and 10;

5 Fig. 12 is a schematic perspective view of a portion of an alternative embodiment of receiving means according to the invention;

Fig. 13 is a schematic front view of a cover part of a device according to the invention for receiving a rectangular information carrier;

Fig. 14 shows a first alternative embodiment of a device comparable to that as shown in Fig. 8, with the receiving means on an inlay;

10 Fig. 15 shows an embodiment comparable to that according to Fig. 9, with the receiving means on an inlay;

Fig. 16 shows a further alternative embodiment of a device according to the invention, with the receiving means on an edge-shaped inlay, secured to a folded box-shaped device;

15 Fig. 16A shows a portion of an edge-shaped part according to Fig. 16;

Fig. 17 shows a further alternative embodiment of a device according to Figs. 15 and 9, with the receiving means on an inlay, glued within the package; and

20 Fig. 18 shows a Jewel case-like package with receiving means according to the invention on an inlay.

In this description, the same or corresponding parts have the same or corresponding reference numerals. In the embodiments shown, the devices according to the invention have been manufactured in one piece by injection molding from plastic, comprising cover parts which have been connected to each other and/or a back through integrally injection molded hinges (living hinges). The cover parts can be swung against each other for obtaining a box-shaped, closed package within which information carriers such as CDs, chip cards, diskettes, minidisks and the like can be locked. It will be clear, however, that comparable devices can also be manufactured from several 30 parts, for instance loose cover parts which can be connected to each other

through suitable hinge means or can be loosely pressed onto each other. Suitable hinge means are sufficiently known, for instance as used in the known Jewel-box.

Fig. 1 shows in perspective view a first embodiment of a device 1 according to the invention for packaging circular, substantially flat information carriers 2, in particular CDs. The device 1 comprises a first cover part 3 and a second cover part 4, with a back 5 arranged between them, mutually connected through living hinges 6. The two cover parts 3, 4 are provided with an upstanding longitudinal edge 7, 8, which edges have been profiled in a conventional manner, such that they can engage onto and/or into each other in the closed position when the cover parts 3, 4 have been swung against each other. On the first cover part 3, receiving means 9 are provided, within the longitudinal edge 7, in which the information carrier 2 can be received in a lock position. In Fig. 1, the information carrier 2 has been placed in a free position on the first cover part 3 and, in a manner to be further described hereinafter, can thence be slid to a lock position, as schematically represented in broken lines in Fig. 5. In the second cover part 4, clamping fingers 10 are provided adjacent the side remote from the back 5, which extend into the interior of the package and under which, for instance, a booklet associated with the information carrier 2 can be clamped.

The receiving means 9 comprise, in the embodiment shown in Fig. 1, two guide elements 11, a stop shoulder 12 and two resilient fingers 13. In Fig. 3, in perspective view, on an enlarged scale, a guide element 11 with resilient finger 13 is shown. The guide element 11 has a somewhat U-shaped cross section, provided with a lower leg 14, an upper leg 15 extending approximately parallel thereto, and an upright wall 16. Of the two guide elements 11, the legs 14, 15 extend in the direction of each other. They are disposed approximately parallel to the cover face 17 of the first cover part 3. The two guide elements 11 and the stop shoulder 12 are

situated on an imaginary circle, such that an upstanding wall 18 and the upright walls 16 approximately define a semicircle having a radius approximately corresponding to the radius of the information carrier 2. The distance between the lower leg 14 and the upper leg 15 is approximately 5 equal to the thickness of the information carrier 2, the arrangement being such that the information carrier 2 can be slipped, from the side remote from the stop shoulder 12, into the guide elements 11 as far as the stop shoulder 12, whereby a portion of the longitudinal edge 19 of the information carrier 2 is received between the lower legs 14 and the upper 10 legs 15 of the two guide elements 11 and is thereby substantially secured against movement in a direction away from the wall 17. Additionally, the stop shoulder 12 and/or the guide elements 11 prevent the information carrier 2 from sliding further, beyond the stop shoulder 12. The thickness of the lower leg 14, as well as of the upper leg 15, is a few tenths of 15 millimeters. Due to the information carrier 2 having its longitudinal edge 19 resting on the lower leg 14, the outer surface of the information carrier 2 facing the closing face 17 is held in spaced relation therefrom, so that the information carrier 2 is protected. The depth of the groove 20 of the guide elements 11, between the legs 14, 15, is selected such that preferably only 20 an unrecorded portion of the information carrier 2 is received therein, so that damage to the information carrier 2 is prevented still better. The groove 20 preferably forms a sliding fit for the longitudinal edge 19, allowing only little play. The longitudinal edge 19 is preferably not clamped between the legs 14, 15, so that undesired stresses are prevented still better.

25 The guide elements 11 are arranged symmetrically relative to a first axial line 21, on opposite sides thereof, and link up approximately with a second axial line 22, which extends at right angles to the first axial line 21, such that the guide elements 11 and the stop shoulder 12 approximately include a semicircle. On the side of the second axial line 22 remote from the 30 stop shoulder 12, shown in Fig. 5 as aligning with the guide elements 11,

there is provided a circular segment-shaped support edge 23, which is so curved and so positioned as to be situated on the same (imaginary) circle as the guide elements 11, at least the lower leg 14 and the stop shoulder 12. In the lock position of the information carrier 2 as shown in Fig. 5, the

5 longitudinal edge 19 rests on the support edge 23, or at a slight distance thereabove, for further support. The support edge 23 has a thickness above the cover face 17 approximately corresponding to the thickness of the lower leg 14, or a little less. At a greater distance from the second axial line 22, two curved lay-in shoulders 24 are positioned, having a bend radius

10 corresponding to the radius of the information carrier 2, which lay-in shoulders 24 have a somewhat L-shaped cross section, as shown in Fig. 5A. Provided on the side facing outwards is a relatively high first edge 25; next to it, a low edge 26 having a thickness approximately corresponding to the thickness of the lower leg 14 of the guide elements 11. As shown in Fig. 5A

15 by broken lines, an information carrier 2 can be laid on the lay-in shoulders 24, in particular on the low edge 26, within the high edges 25, with the information carrier 2 extending above the support edge 23. Between the lay-in shoulders 24 and the guide elements 11, there extends, on opposite sides of the first axial line 21, a sliding shoulder 27, such that the

20 information carrier 2, while supported on the lay-in shoulders 24, can be slid from the free position shown in Fig. 1 over the sliding shoulders 27 to the lock position shown in Fig. 5, with a part of the longitudinal edge 19 of the information carrier received in the guide means 11 and abutting against the stop shoulder 12 and possibly resting on the support edge 23. This sliding movement can be performed in the opposite direction to take out the

25 information carrier 2. In a simple manner, for instance, a finger can be inserted in the central opening 30 of the information carrier 2 to effect this sliding movement.

The resilient fingers 13, as appears clearly from, for instance, Fig. 3, 30 are attached to the ends of the lay-in shoulders 24 proximal to the guide

elements 11, and extend inwards, in the direction of the second axial line 22. Fig. 3A, in front view, schematically shows a portion of a device 1 according to the invention, in particular a detail of the information carrier 2 in the lock position within the receiving means 9. It shows that the information carrier 2, when sliding in the slide-in direction S_1 from the free position (Fig. 1) to the lock position (Fig. 5), passes the resilient fingers 13, whereby the fingers are elastically pushed aside from the position shown in full lines in Fig. 3A to the position represented in broken lines. After the information carrier 2 has passed, the resilient elements 13 spring back to the position represented in full lines, thereby ending up, preferably undeformed, or deformed only to a particularly minor extent, against the side of the longitudinal edge 19 of the information carrier 2. In this position, the information carrier 2 is locked by, on the one hand, the guide elements 11 and/or the stop shoulder 12, against further displacement in the slide-in direction S_1 and against displacement in a direction at right angles to the closing face 17, while the information carrier 2 is locked against sliding in the slide-out direction S_2 , opposite to the slide-in direction S_1 , by the resilient elements 13. Only when sufficient force is exerted on the information carrier 2 in the slide-out direction S_2 will the resilient elements 13 be elastically pushed aside again, so that the information carrier 2 can pass the resilient elements 13. From the free position as shown in Fig. 1, the information carrier 2 can then be simply taken out, approximately at right angles to the closing face 17.

Since the receiving means 9 and the lay-in shoulders 24 extend completely within the longitudinal edge 7, the information carrier 2 is prevented still better from coming loose unintentionally. Placing the information carrier 2 is particularly simple. In fact, it only needs to be laid flat within the lay-in shoulders 24 to be subsequently slid in the slide-in direction S_1 into the lock position. In the lock position, the receiving means 9

exert substantially no forces on the information carrier 2, so that undesired stresses are simply prevented.

In Fig. 6, the device 1 according to the invention is shown, from the rear, in open position. Clearly visible are the guide elements 11, the stop shoulder 12, the resilient elements 13 and the lay-in shoulders 24, as well as the clamping fingers 10. On the first cover part 3 and the second cover part 4, adjacent the longitudinal edge 7, 8, ridges 31, 32 are provided which, in the closed position of the device 1, are in mutual engagement for keeping the device 1 closed.

Fig. 7 shows a first alternative embodiment of a device 1 according to the invention, in which the receiving means 9, at least the stop shoulder 12, has been displaced approximately against the longitudinal edge 7, such that the information carrier 2 in the free position lies approximately in the middle of the cover part 3, while in the lock position it is displaced with respect to the middle. In a variant of this, not shown, on opposite sides of the middle of the first cover part 3, receiving means 9 are provided, against or adjacent the longitudinal edge 7, while the guide elements 11 on a first side of the middle are situated slightly higher than those on the second side. In such an embodiment, first a first information carrier 2 can be laid in the middle and be slid into the second receiving means 9, whereafter a second information carrier 2 can be laid in the middle and can be slid into the first receiving means 9. Thus, a packaging device of greater capacity is obtained.

In Fig. 8, a second alternative embodiment of a device 1 according to the invention is shown, in which the receiving means 9 have been rotated through 90° on the first cover part 3, such that the slide-in direction S₁ extends at right angles to the longitudinal direction of the back 5. The longitudinal edge 7 is then preferably lowered on the side remote from the back, so that the information carrier 2 can be slid over it.

In Figs. 9, 10 and 11, a third alternative embodiment of a device 1 according to the invention is shown, arranged for receiving two information

carriers on the first cover part 3, which, in the lock position, are located directly above each other. To that end, the first cover part 3 is designed to be substantially mirror-symmetrical at least with respect to the second axial line 22 in front view as shown in Fig. 9, however, with receiving means 9A, 5 9B at different levels. As appears clearly from Fig. 11, the first receiving means 9A, shown in lower position in Fig. 11, are lower than the second receiving means 9B. This means in particular that the first lay-in shoulder 24A, the first support edge 23A and the first, lower guide means 11 are lower than the second lay-in shoulder 24B, the second support edge 23B and 10 the second, upper guide means 11B, which are placed on top of the first guide means 11A. First and second resilient elements 13A, 13B are provided on opposite sides of the guide means 11A, 11B. In this embodiment, a first information carrier 2 is deposited, in a free position, within the first lay-in shoulder 24A, above the first support edge 23A, in Fig. 11 adjacent the 15 upper longitudinal edge 7A. Then the information carrier 2 is slid in the slide-in direction S_{1A} towards the middle of the first cover part 3, thereby elastically urging the first resilient elements 13A outwards, so that a portion of the longitudinal edge 19 of the first information carrier 2 can be received in the first guide means 11A. The first, lower information carrier 2 20 will then end up having its longitudinal edge disposed against the second finger 13B and in an adjacent further part of the first guide means 11A. In other words, the first information carrier 2A will rest against the first and second resilient elements 13A, 13B, being substantially undeformed, and be partly received in the first guide means 11A. Next, a second information 25 carrier 2 is deposited within the second lay-in shoulders 24, adjacent the longitudinal edge 7B shown in lower position in Fig. 11. This second information carrier 2 is then slid in the second slide-in direction S_{1B} towards the middle of the first cover part 3, into the second, upper guide elements 11B, thereby elastically pushing aside the second resilient elements 13B, 30 until the information carrier 2 has passed them. The second information

carrier 2 will then be just neatly disposed in a portion of the second guide means 11B located behind the second fingers 13A, viewed in the slide-in direction S_{1B} . Then this second information carrier 2 too will be locked in a lock position, in the second guide element 11B and between the resilient elements 13A, 13B. For that matter, the resilient elements 13A, 13B can also be so designed as to engage only the first, lower information carrier 2 and the upper, second information carrier 2, respectively. The second support edge 23B, for that matter, can function as stop shoulder for the first information carrier 2.

Fig. 12 schematically shows in perspective view a further alternative embodiment of receiving means 9 for a packaging device for information carriers according to the invention, the embodiment shown in Fig. 12 allowing two information carriers to be locked. In this embodiment, on two opposite sides of the information carrier, two resilient elements 13 are provided, approximately as shown in Fig. 10, with carrying arms 40 which have opposite angles of inclination, slightly axially directed. Each resilient element 13 comprises a substantially cylindrical engagement element 41, carried on the free end of the carrying arm 40. Each engagement element 41 comprises at least one groove 42 between two locking edges 43, situated above each other in axial direction. The height H of the groove 42 corresponds approximately to the thickness D of the information carrier 2 to be received therein, schematically represented in Fig. 12 in chain-dotted lines. In Fig. 12 two grooves 42 are shown above each other, so that two information carriers S_2 can be received above each other in the resilient elements 13. In such an embodiment, the or each information carrier 2 can be slid in in a manner as described earlier in relation to the earlier embodiments, but the guide elements 11 are no longer necessary, nor the stop shoulders 12. In fact, displacement in a direction at right angles to the surface of the information carrier 2 is prevented by the wide parts 43 of the engagement elements 41, while movement in the slide-in or slide-out

direction S_1, S_2 is simply prevented by the resilient elements 13. Naturally, the resilient elements 13 as shown in Fig. 12 can also be combined with each of the embodiments described earlier. Moreover, they can be implemented in any suitable manner, for instance to have a cross section other than a substantially cylindrical cross section.

5 Fig. 13, in front view, schematically shows a first cover part 3 of a further alternative embodiment of a device 1 according to the invention, suitable in particular for use for packaging rectangular information carriers, such as chip cards, SIM cards, diskettes and the like. In this embodiment, 10 the receiving means 9 again comprise guide elements 11 as described earlier and two stop shoulders 12, in this embodiment designed as block-shaped elements having blind grooves 12A. A lay-in shoulder 24 is provided on the opposite side of the cover part 3, having a slightly curved recess 44, in which, for instance, a finger can be inserted, next to an information carrier 2 15 when it has been laid on the relatively low leg 26 within the lay-in edge 24. Provided adjacent the guide elements 11 are resilient elements 13, in this embodiment constituted by a somewhat omega-shaped strip 45, attached, through the two legs 46 thereof, to projections 47, with the convex parts 48 20 of the omega-shaped strips 45 facing each other. In this embodiment, an information carrier 2 can be deposited, in a free position, within the lay-in shoulder 24, on the side of the convex parts 48 proximal to the opening 44, whereafter the information carrier 2 can be moved in the slide-in direction S_1 , thereby pushing the strips 45 aside in outward direction, so that the information carrier 2 can pass them and can be guided through the guide 25 elements 11 into the blind grooves 12A. When the information carrier 2 has passed completely, the strips 45 will rebound and thereby lock the information carrier 2. Taking out the information carrier 2 is simply possible through a reverse sliding movement.

These elements designed as resilient strips can be used in the 30 embodiments shown earlier, for instance on one side, while they can extend

into the back if the first cover part is connected directly, i.e., not hingedly, to the back.

Devices according to the invention can be wholly or partly provided with print or be provided with in-mold labels. Moreover, conventional 5 sleeves for DVD cases, video cases and the like can be provided on the outside, for leaflets and the like.

Fig. 14 shows a packaging device 1 according to the invention, in which the receiving means 9 are provided on an inlay 50, which has been slid under projections 51 of the first cover part 3. The two cover parts 3, 4 and the back 5 placed therebetween have been manufactured in a manner described earlier, 10 for instance from plastic with living hinges 6, while the inlay 50 with the integrated receiving means 9 can be manufactured from the same or a different plastic. Fig. 15 shows a device 1 comparable to that shown in Fig. 14, while the inlay 50 has been slid under projections 51 and comprises 15 receiving means 9A, 9B as shown in Fig. 9. For the devices according to Figs. 14 and 15, the same box can be used with projections 51 under which the inlay 50 with any desired type of receiving means 9 can be slid.

Fig. 16 shows a device 1 according to the invention, wherein the cover parts 3, 4 and the back 5 are manufactured from plate material, such as 20 cardboard, while on the cover part 4 an upstanding edge 7 may be folded, having a height approximately corresponding to the height of the back 5. On the first cover part 3 an inlay 50 with the receiving means 9 is secured, for instance through gluing or through insertion into recesses in the cover part 3. In the embodiment shown, the inlay 50 is edge-shaped, substantially 25 horse-shoe shaped in the embodiment shown, such that a supporting surface 52 is obtained on which the receiving means 9 are provided, preferably injection molded in one piece. By way of the face 52, the inlay 50 can be secured, in particular glued. Provided within the inlay 50 is an opening 53, through which the cover face 3 is visible. The cardboard or plastic material 30 from which the cover parts 3, 4 and the back 5 have been folded, can be

simply printed or otherwise provided with pictures and the like, which remain visible in the opening 53 and around the inlay 50. If the cover parts 3, 4 are formed from transparent material, an information carrier arranged in the receiving means 9 can be visible through the opening 53 from the 5 outside of the device 1, also when closed.

Fig. 17 shows a device comparable to that shown in Fig. 15, but in which the inlay 50 has been glued onto the cover part 3, for instance with glue points 54 or the like.

Fig. 16A schematically shows a portion of an inlay 50 for use in a 10 device according to Fig. 16.

Fig. 18, finally, shows a device 1 according to the invention of Jewel case-like design. Again, an inlay 50 has been laid on or in a cover part 3, for instance in a manner as known from Jewel cases. In this embodiment, the receiving means 9 on the inlay 50 are designed for receiving a single 15 information carrier.

It will be clear that when an inlay with receiving means is used, this can have any desired dimension and, for instance, can also be used in a standard size CD box, such as a Jewel case. Combinations of all embodiments shown in the figures of devices according to the invention and parts thereof 20 are also understood to fall within the scope of the invention. Thus, for instance, all receiving means shown can be used on substantially edge-shaped inlays for attachment in or on a cover part, while moreover several inlays can be used in a single device. Moreover, a device 1 according to the invention may be provided with more than two cover parts, in each case 25 mutually hinged, while receiving means may be provided on one or more of the cover parts, in particular by means of inlays, the arrangement being such that the different cover parts can be folded over each other, so that these are all disposed substantially above each other when the device is closed.

For the sake of completeness, it is noted that for a further description 30 of particularly the receiving means and cover parts of the embodiments as

shown in Figs. 14-18, reference is made to the preceding figures and the associated description.

It will be clear that the invention is not limited to the exemplary embodiments presented in the description and drawing. Many variations thereon are possible within the framework of the invention outlined by the claims. Thus, both the first and the second cover part can be provided with receiving means for information carriers, while all embodiments and associated variants shown can be combined within the same packaging device. Guide elements and support edges can be designed as separate parts

but can also be mutually integrated, for instance as a continuous rail-shaped element of substantially U-shaped cross section. Also, the stop shoulder can optionally be omitted. The resilient elements can be provided on one or both sides. The guide elements can be designed such that the slide-in direction to some extent includes an angle with the closing face 17 of the respective cover part, such that information carriers, while inclined relative to the cover part, can be slid into the lock position. In such an embodiment, for instance, on one cover part, two information carriers can be slid one under the other, to some extent overlapping like roof tiles.

Information carriers 2 can be simply, by hand or mechanically, laid in or removed from a device 1 according to the invention. Within the framework of the invention, any combination of embodiments of parts of devices according to the invention as shown and described can be combined. Optionally, further cover parts can be included as leaves between the first and second cover part, for instance connected with the back on which further receiving means can be provided, for instance for comparable information carriers, for booklets and the like.

These and many comparable variations are understood to fall within the scope of the invention as outlined by the claims.

CLAIMS

1. A device for packaging substantially platelike information carriers, provided with a first and a second cover part, wherein at least one of the cover parts is provided with receiving means for engaging and locking at least one information carrier, which receiving means comprise at least two 5 guide elements, which can guide and lock at least a portion of an outer edge of the information carrier, such that during use the information carrier can be slid into or under the guide elements, while the information carrier can be taken out of the package by sliding it approximately parallel to its surface and approximately parallel to the respective cover part.
- 10 2. A device according to claim 1, wherein at least one resilient element is provided, which, when an information carrier has been received in the device, engages against a longitudinal edge of the information carrier, while the information carrier can be taken out of the package by sliding it approximately parallel to its surface and approximately parallel to the 15 respective cover part, while elastically deforming the at least one resilient element.
3. A device according to claim 1 or 2, wherein the guide elements comprise rail-shaped elements, dimensioned and positioned such that an information carrier can be slid into them by at least a portion of its 20 longitudinal edge, with a sliding fit or with minor clearance with respect to the dimensions of the information carrier.
4. A device according to claim 3, arranged for receiving substantially circular, platelike information carriers such as CDs, wherein the rail-shaped elements are slightly curved, having a bend radius substantially 25 corresponding to the radius of the information carriers to be received, and each include a circular segment, which rail-shaped elements are disposed approximately symmetrically with respect to a first axial line, along an

imaginary circle approximately corresponding to the outer contour of the information carrier to be received, such that the information carrier is slidable into the rail-shaped elements from an infeed side and the possible displacement is limited by the rail-shaped elements.

5 5. A device according to claim 4, wherein adjacent the infeed side at least one resilient element is provided for locking an information carrier in the rail-shaped elements, which resilient elements, when an information carrier has been received in the rail-shaped elements, are positioned on the side of a second axial line, extending at right angles to the first axial line, of 10 the information carrier, remote from the rail-shaped elements.

10 6. A device according to claim 5, wherein the or each resilient element, when an information carrier has been received in the rail-shaped elements, lies at a small distance from or against the longitudinal edge of the information carrier, while the or each resilient element is at least 15 substantially not deformed, such that substantially without stress the information carrier is locked and is substantially secured against movement in the receiving means.

15 7. A device according to any one of the preceding claims, wherein the or each cover part in which the receiving means are provided has such 20 dimensions that at least one information carrier is positionable thereon in a free position, at least partly next to the receiving means, and is subsequently slidable along the cover part into the receiving means to a lock position.

20 8. A device according to claim 7, wherein the or each respective cover part is at least partly provided with an upstanding longitudinal edge, while during use an information carrier is slidable within the longitudinal edge between the free position and the received position.

25 9. A device according to any one of the preceding claims, wherein the receiving means are designed such that an information carrier received 30 therein has at least the greater part of its approximately flat outer side held

in spaced relation from the cover parts, both in the open and in the closed condition of the device.

10. A device according to any one of the preceding claims, wherein the cover parts are mutually connected by a back, while at least one of the cover parts and preferably both cover parts are connected with the back through hinge means, the device being preferably manufactured by injection molding from plastic with integrally injection molded hinges (living hinges).

11. A device according to claim 10, wherein the receiving means define a sliding direction for the information carrier for placing the information carrier in the receiving means or removing it therefrom, which sliding direction extends substantially parallel to the longitudinal direction of the back.

12. A device according to claim 10, wherein the receiving means define a sliding direction for the information carrier for placing the information carrier in the receiving means or removing it therefrom, which sliding direction extends substantially at right angles to the longitudinal direction of the back.

13. A device according to any one of the preceding claims, wherein the receiving means are arranged for receiving at least two information carriers on at least one of the cover parts, in particular approximately above each other.

14. A device according to any one of the preceding claims, wherein the thickness of the device in closed position is less than 9 mm, in particular less than 8 mm.

15. A device according to any one of the preceding claims, wherein the device has outside dimensions, at least at right angles to the thickness, which correspond approximately to the dimensions of a standard DVD box (about 135 x 190 mm).

16. A device according to any one of the preceding claims, wherein an information carrier is positionable in a first, free position on a cover part,

wherein means are provided for supporting the information carrier on a part of at least one outer surface, located adjacent the outer longitudinal edge, in particular a part that is free of electronic information, such that the further respective outer surface is held in spaced relation from the cover part, while

5 the information carrier is slidable to a lock position in the receiving means, without said outer surface coming into contact with said cover part.

17. A device according to any one of the preceding claims, wherein the first and the second cover part are provided with receiving means.

18. A device according to any one of the preceding claims, wherein the

10 receiving means are provided in, on or as an inlay, secured onto or in at least one of the cover parts.

19. A device according to claim 18, wherein it is designed as a Jewel case-type package.

20. A device according to claim 18 or 19, wherein it is substantially of a

15 design of the size of a DVD box, in particular approximately 135 x 190 mm.

21. A device according to any one of claims 18-20, wherein inlay means are included for receiving at least two information carriers, in particular two types of information carriers.

22. A device according to any one of claims 5-21, wherein the or each

20 resilient element is provided with a foot part attached to the respective cover part or the inlay, such that upon sliding the information carrier in or out, the foot part deforms elastically in a direction which includes an angle between 5 and 90° with the plane of the information carrier.

23. A device for packaging substantially platelike information carriers,

25 provided with a first and second cover part, wherein at least one of the cover parts is provided with an inlay with receiving means for engaging and locking at least one information carrier, such that during use the information carrier can be brought into and out of the receiving means by sliding it approximately parallel to its surface.

30 24. An inlay for use in a device according to any one of claims 18-23.

25. A device according to any one of the preceding claims, wherein the inlay comprises an edge on which the receiving means are secured, while at least within the edge an opening is provided.

5 26. A device according to claim 25, wherein the inlay is secured on a cover part, for instance through gluing, such that said cover part is visible in said opening.

27. A device according to claim 25 or 26, wherein the cover parts have been folded from plate material such as cardboard or plastic.

10 28. A device according to any one of claims 25-27, wherein said cover part is transparent, such that an information carrier is visible through said opening.

15 29. A method for filling a device according to any one of the preceding claims, wherein the device in open position is presented to a filling apparatus, whereafter with the filling apparatus an information carrier is brought above or against a cover part and is subsequently moved approximately parallel to its surface, along the respective cover part, into receiving means arranged thereon.

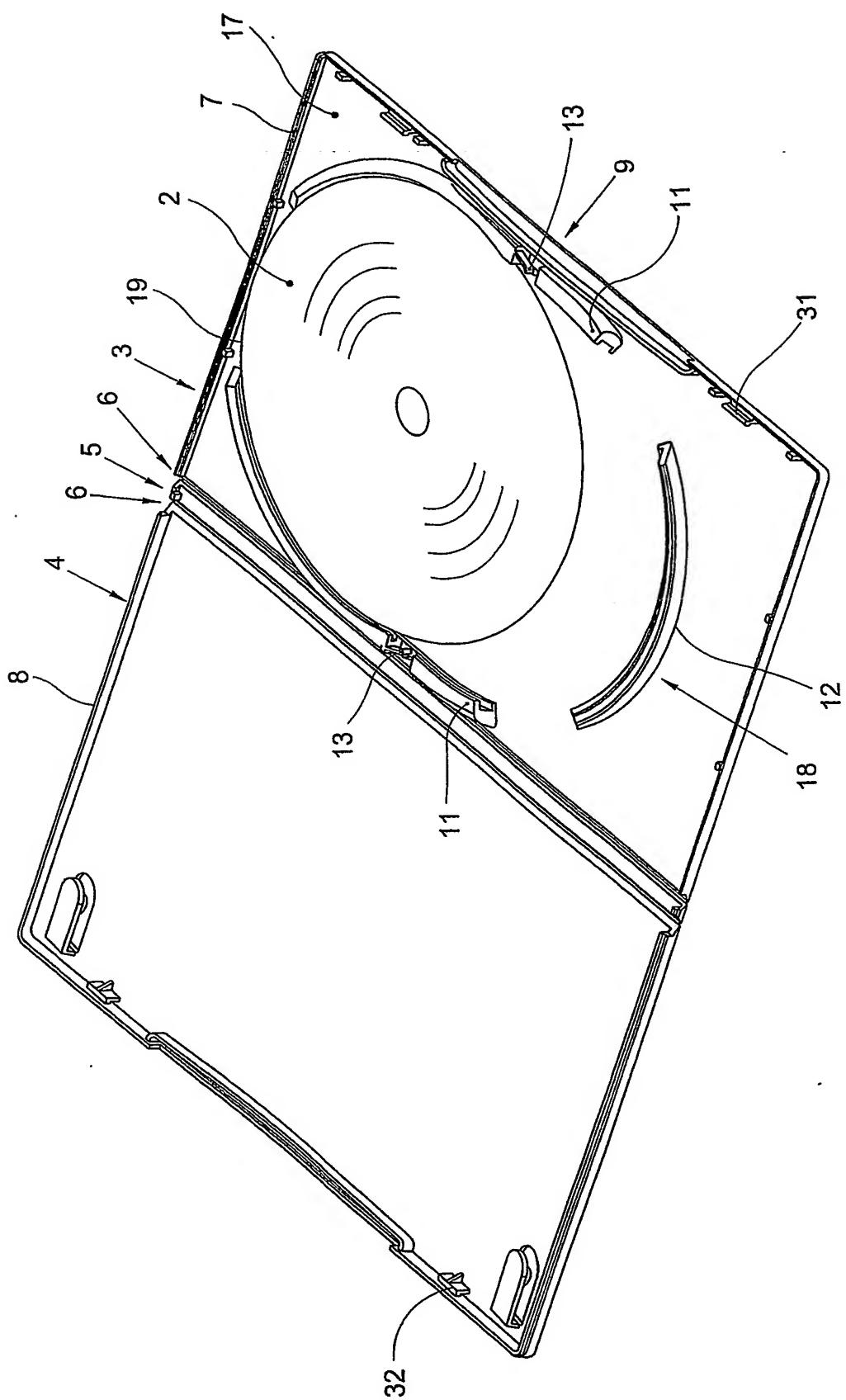


Fig. 1

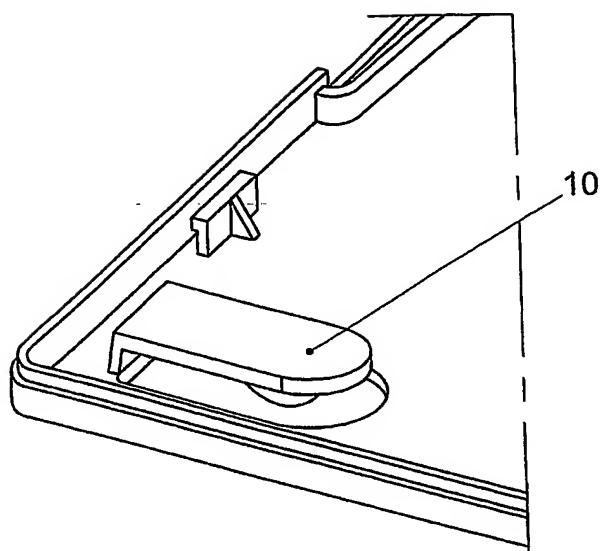


Fig. 2

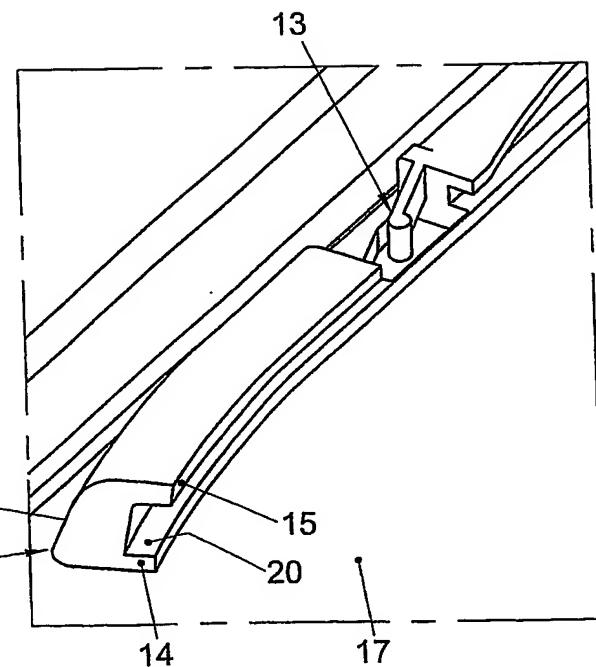


Fig. 3

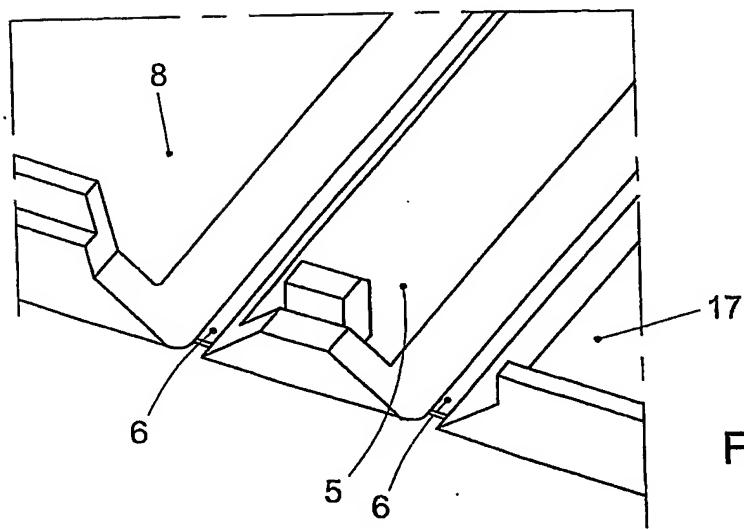


Fig. 4

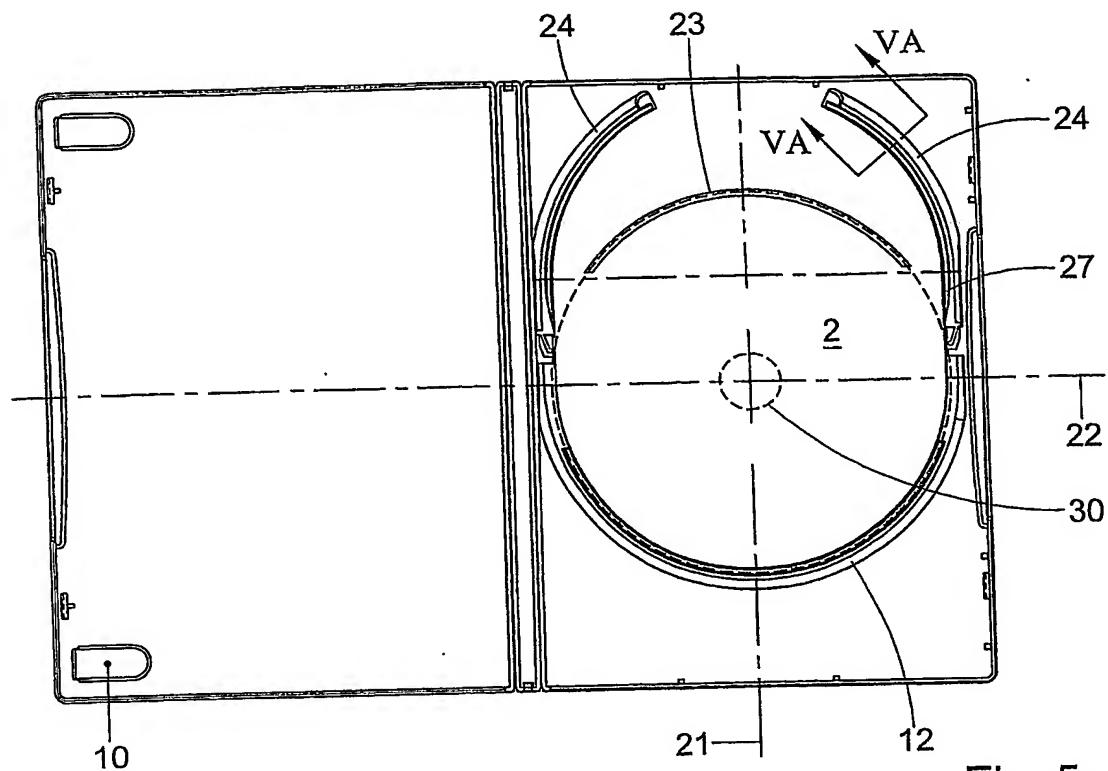


Fig. 5

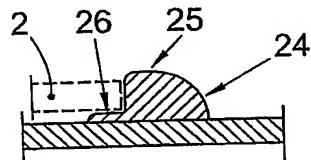


Fig. 5A

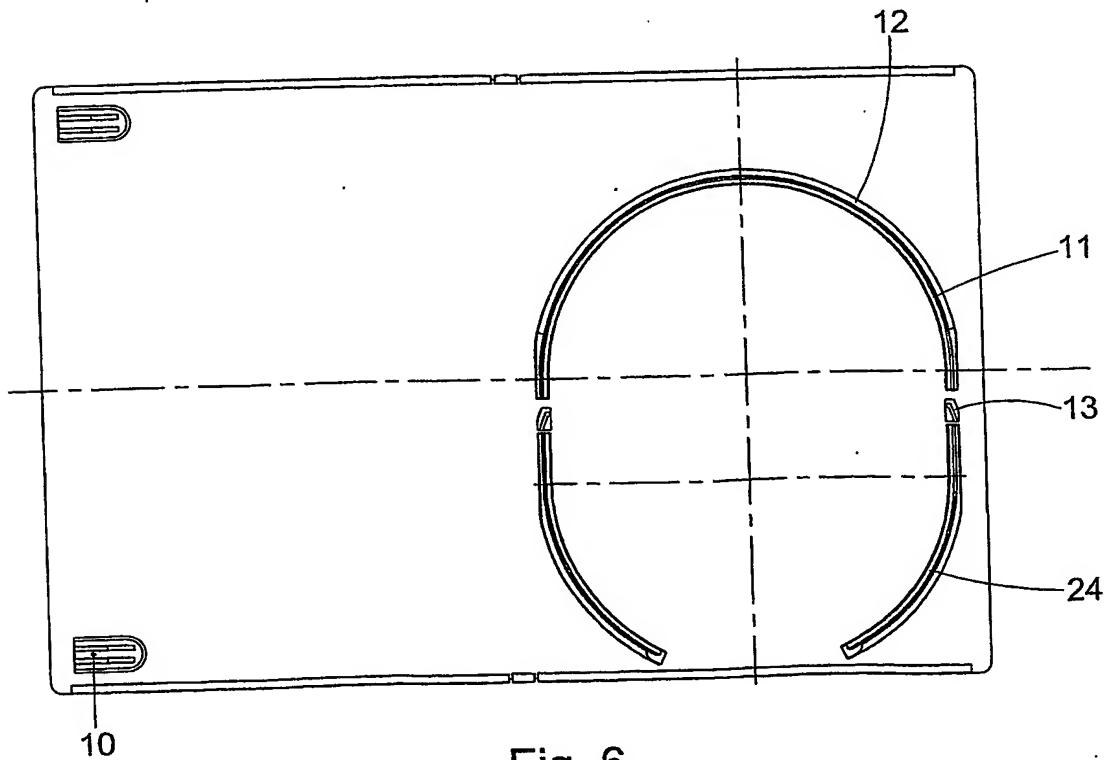


Fig. 6

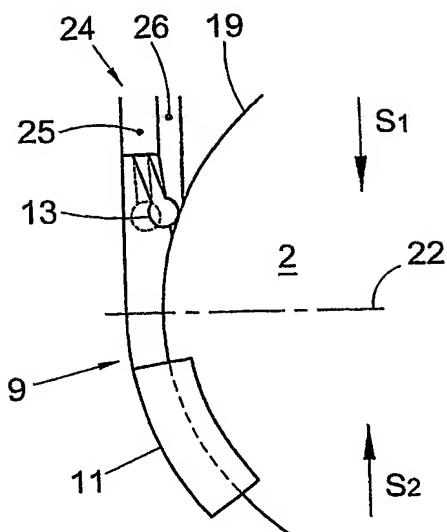


Fig. 3A

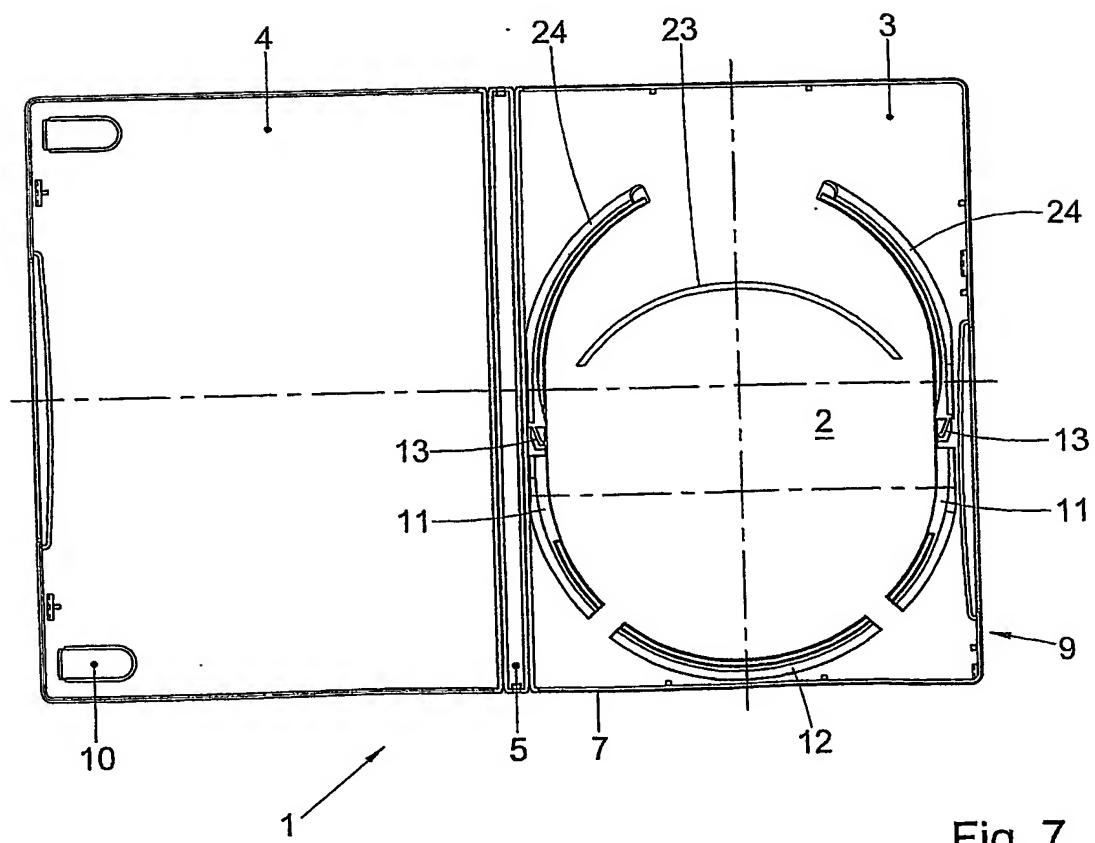


Fig. 7

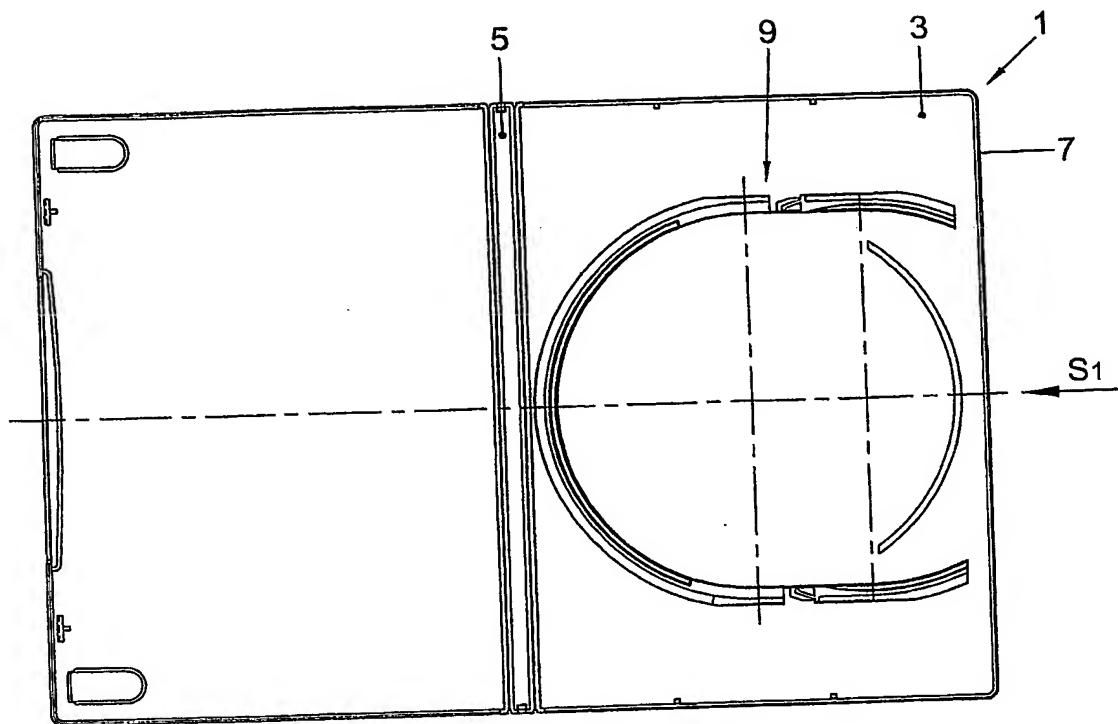


Fig. 8

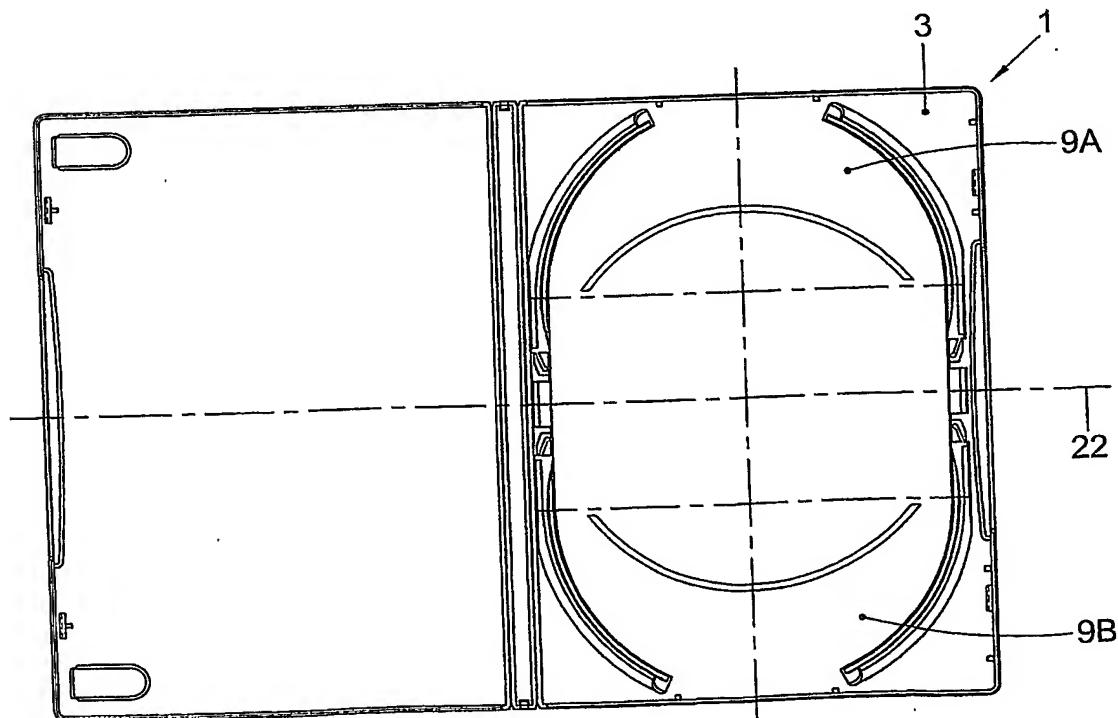


Fig. 9

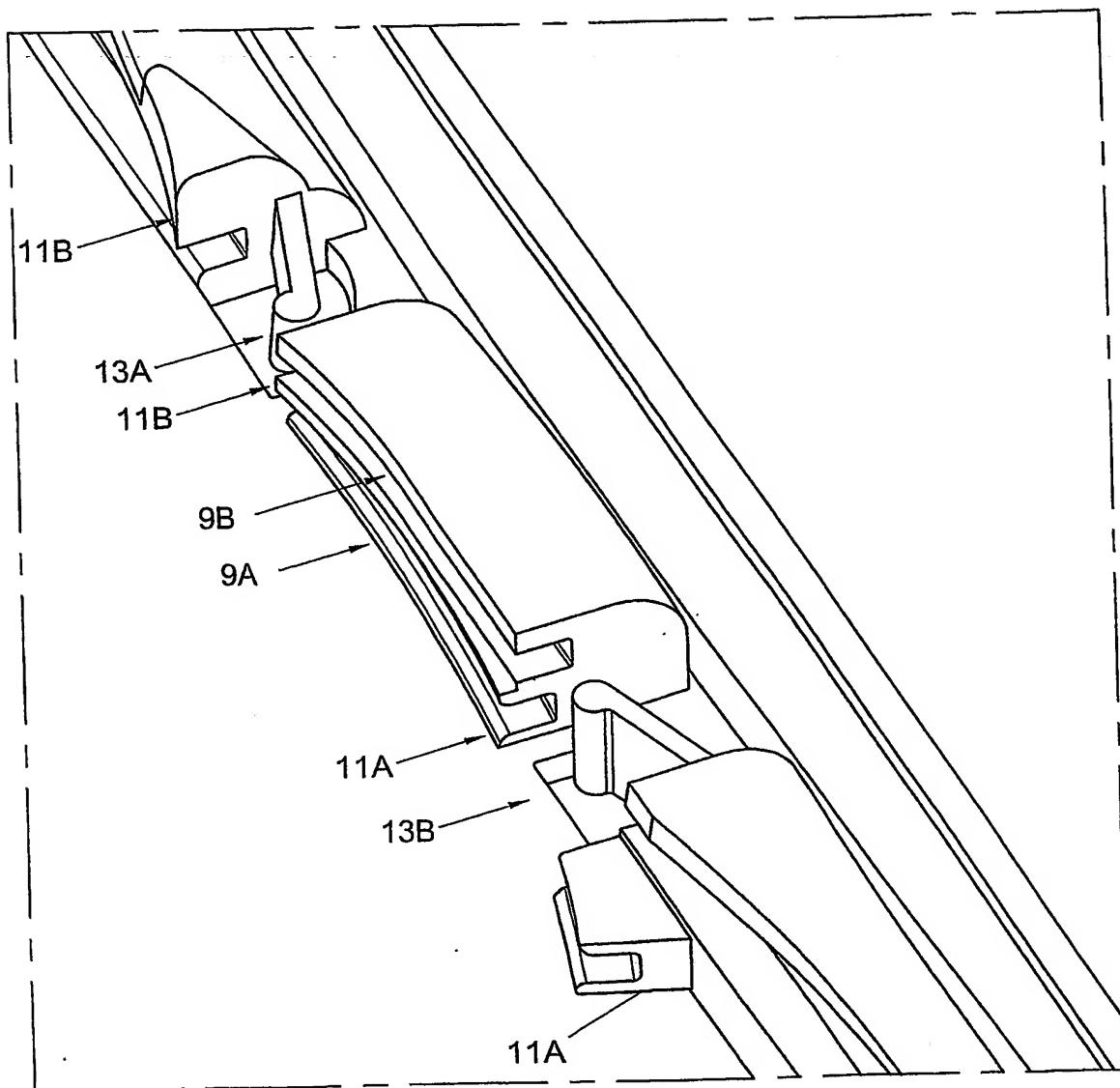


Fig. 10

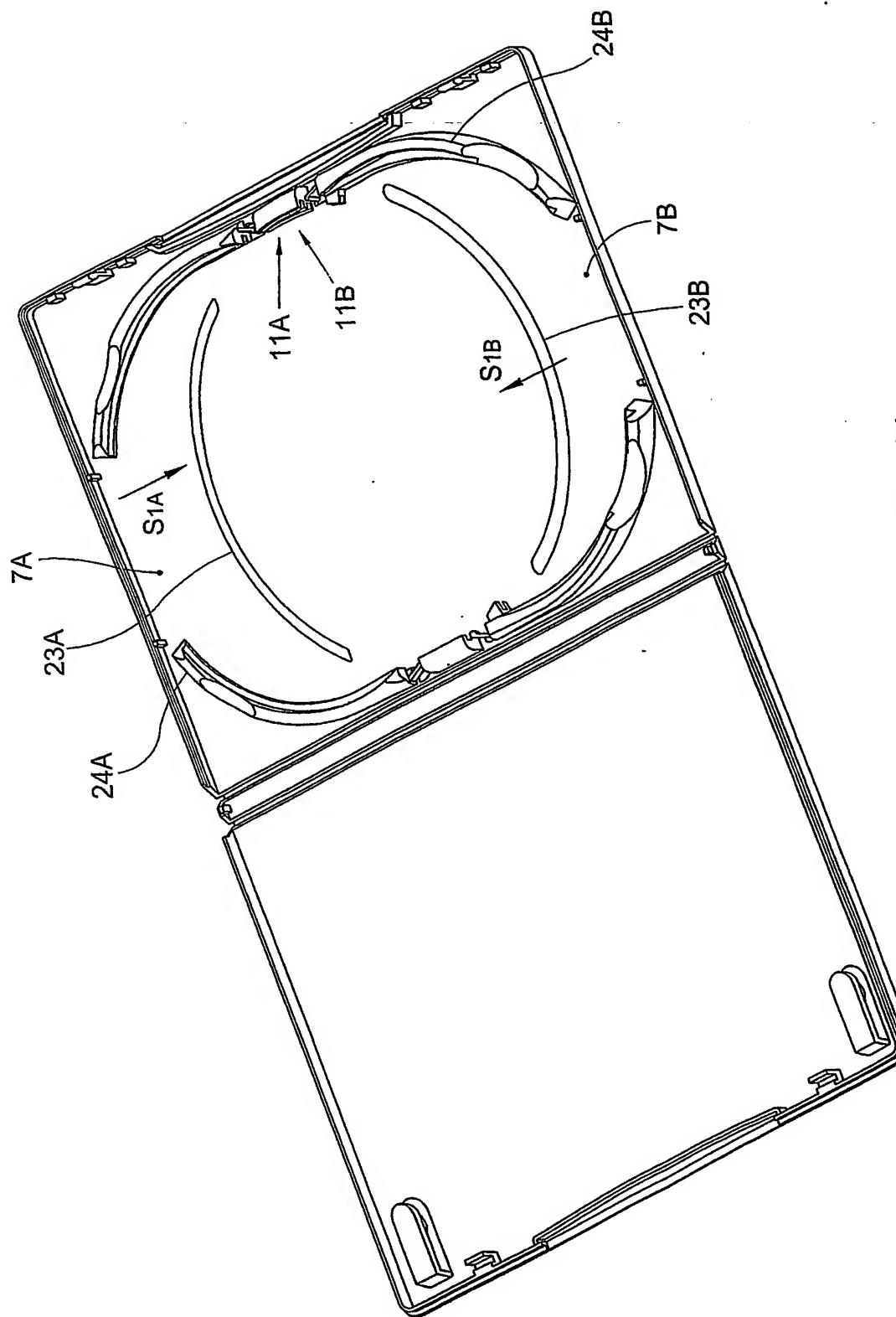


Fig. 11

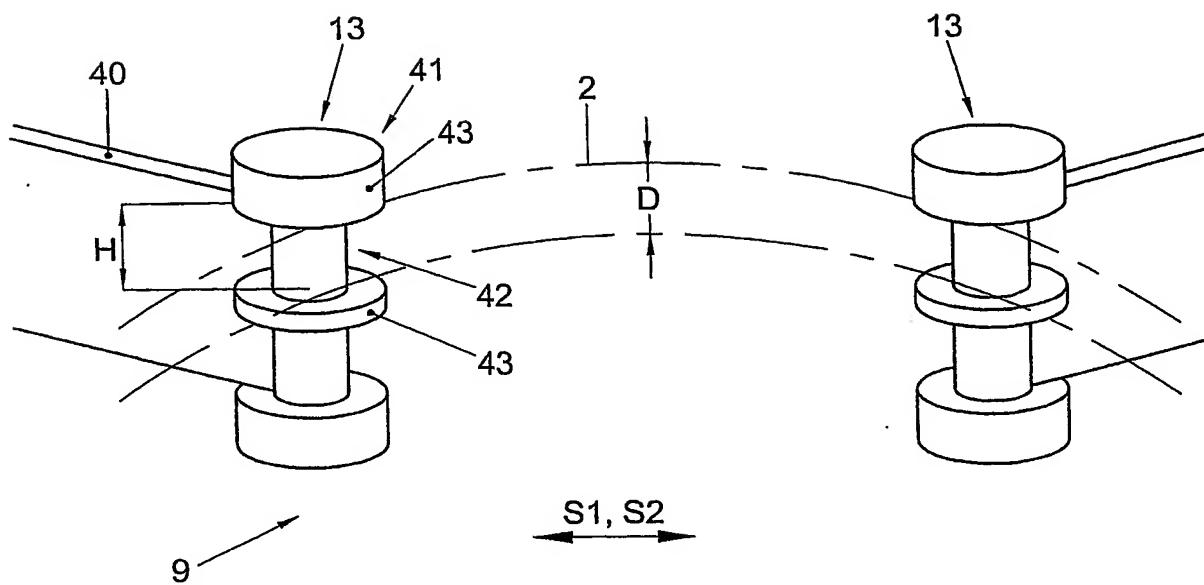


Fig. 12

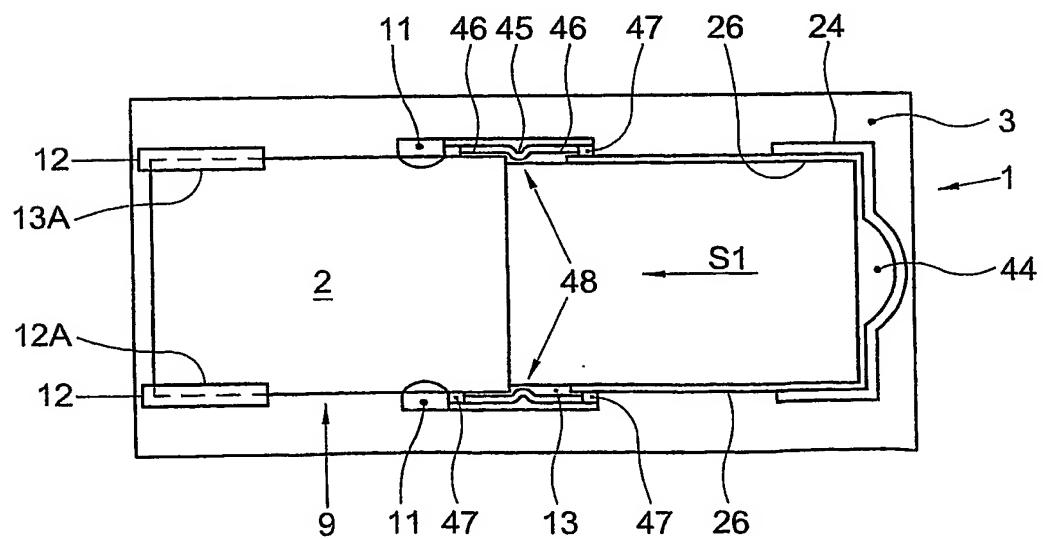


Fig. 13

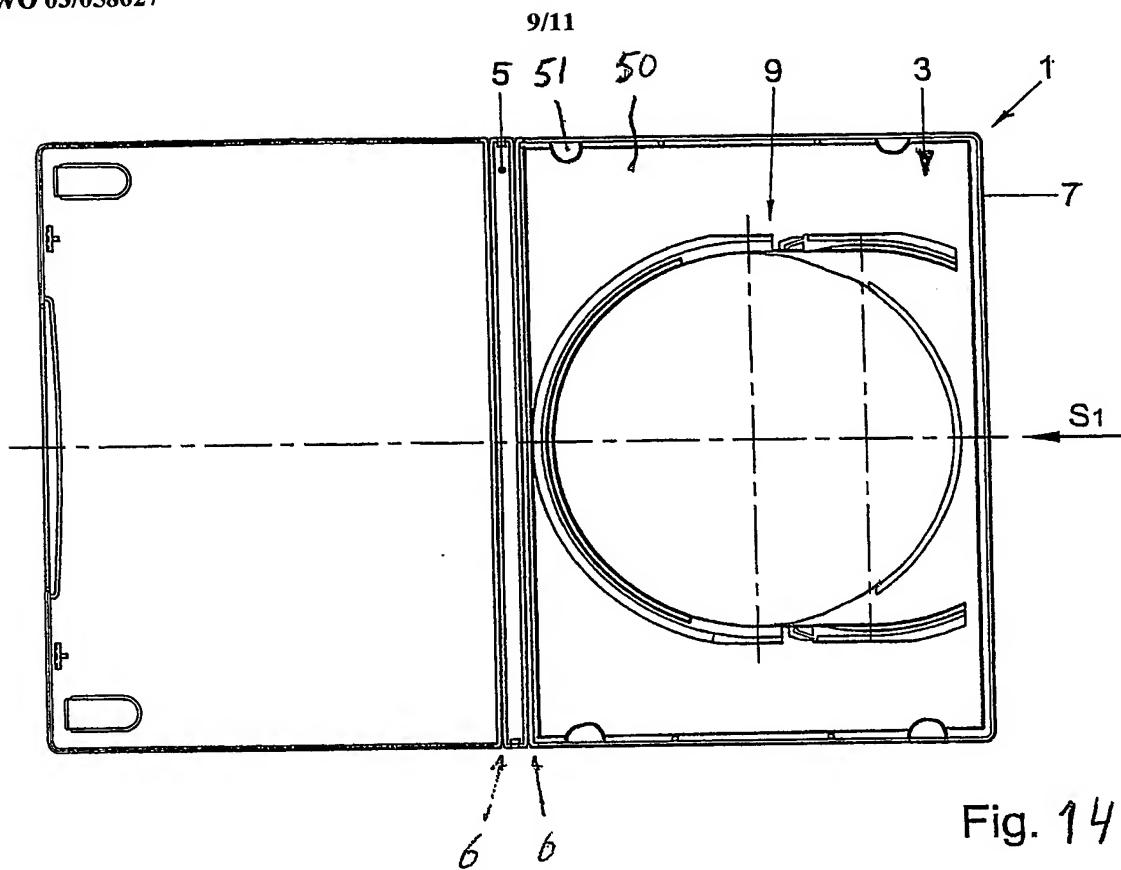


Fig. 14

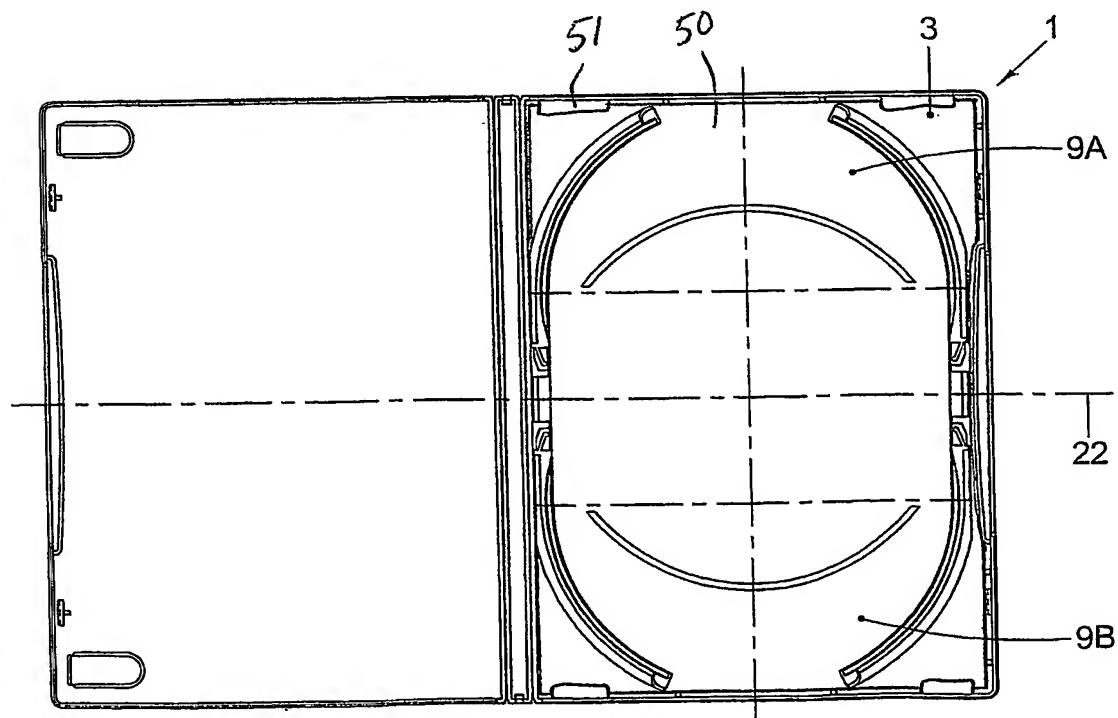


Fig. 15

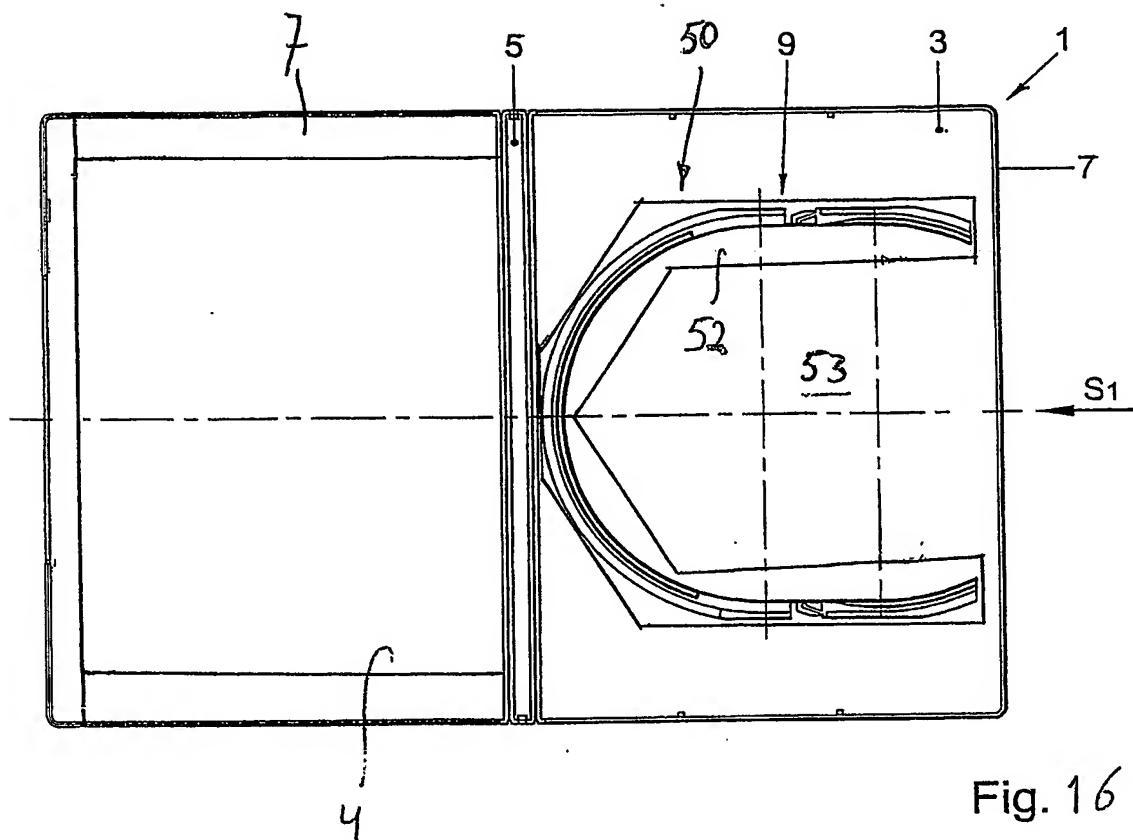


Fig. 16

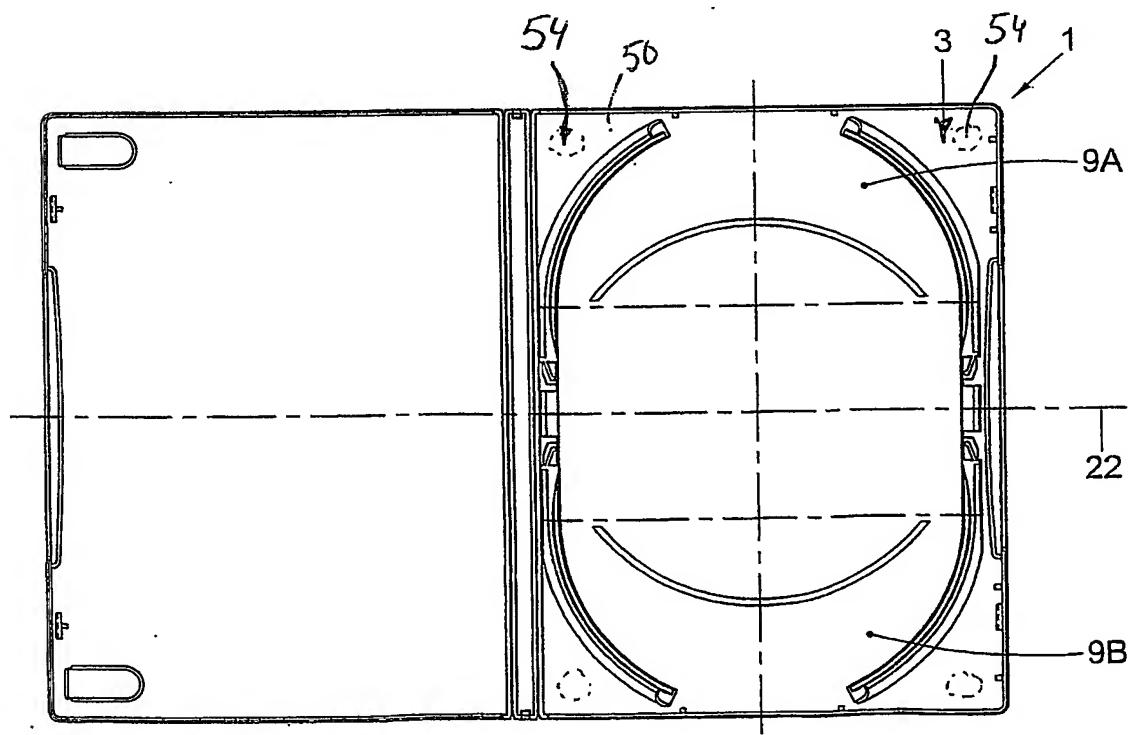


Fig. 17

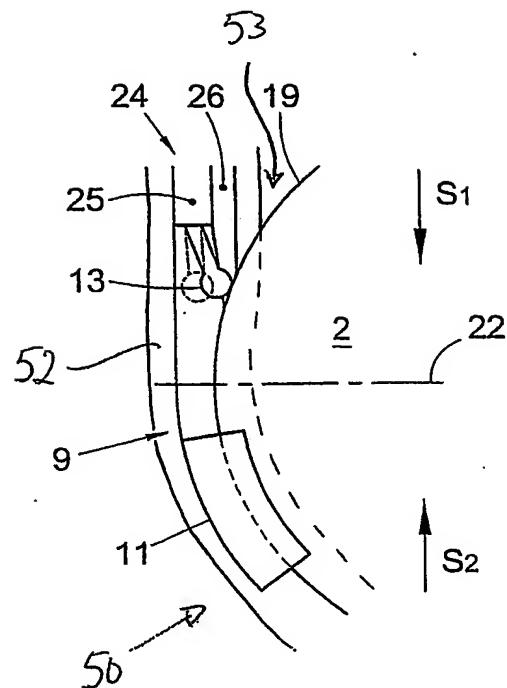


Fig. 16A

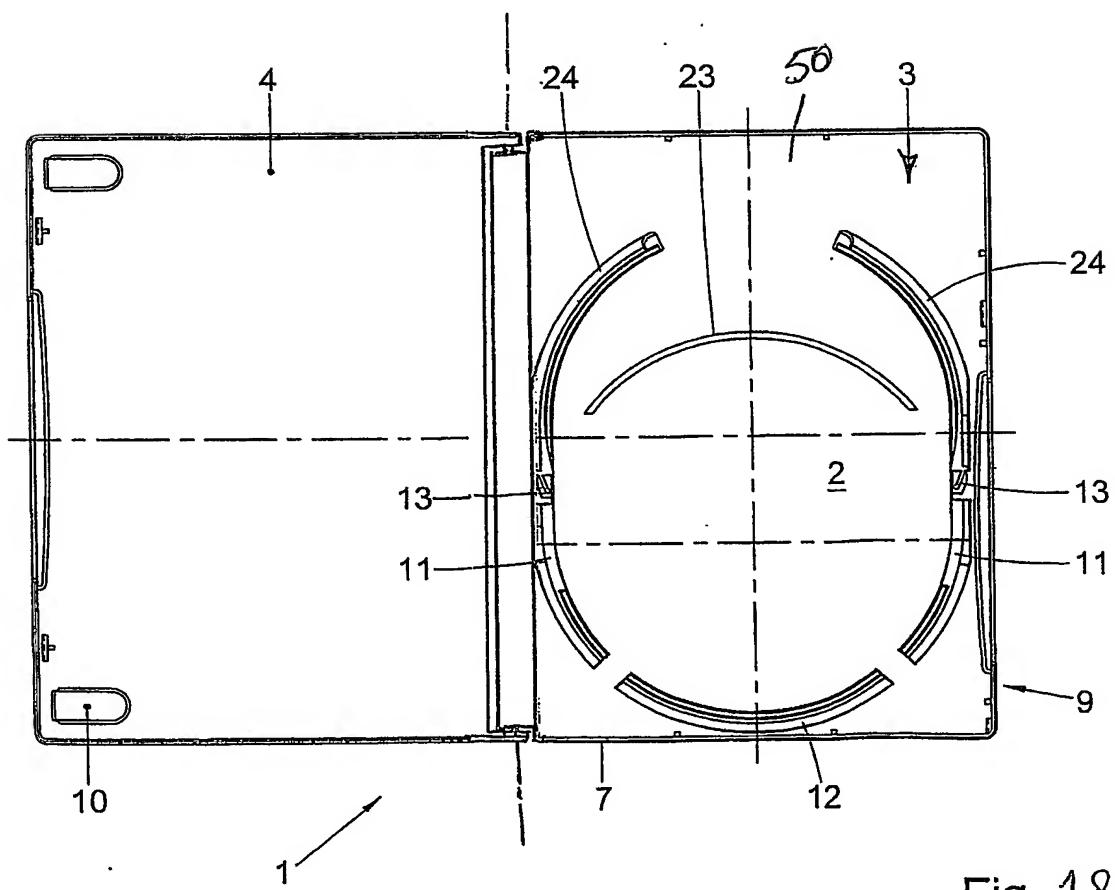


Fig. 18

INTERNATIONAL SEARCH REPORT

PCT/NL 03/00012

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G11B33/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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|-----------------------|--|---------------------------------------|
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

11 April 2003

Date of mailing of the international search report

22/04/2003

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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